CHAPTER 3

SECTIONS 3.12 – 3.30

HULL AND MECHANICAL EQUIPMENT

3.12. Anchors, Marine

3.12.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect small boat anchors (25 pounds. or less) for the presence and legibility of markings (see subparagraph 3.12.3 d); for obvious signs of damage, deterioration, or distortion; and for proper packing and bracing. Report all damage or insufficient packing to the applicable MATREP or Inventory Manager. Remark or repack as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect large unpacked anchors for obvious signs of damage or deterioration (e.g., severe corrosion, severe pitting, cracks, etc.). Report all damage or insufficient packing to the applicable MATREP or Inventory Manager. Remark, or repack as required.

3.12.2 Periodic Inspection

a. Periodicity. Inspect all stored anchors annually.

b. Procedure. If packaged, inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.12.3. Make a note of any damage and its location.

If unpackaged and stored in open, uncovered storage, ascertain that the anchor is adequately supported by the surface beneath and is not sinking into it.

3.12.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. None required.

b. Responsibility. The shipper shall be responsible for providing correct packaging. If that activity is unable to comply with these requirements, it shall turn in the item through the supply activity, which will then bear the responsibility of providing proper preservation and packing. Incorrect or damaged packing will be reported per paragraph 3.12.1.

c. Packing: Anchors will be blocked and braced. Packing . shall be Level C in accordance with best commercial practice (Method 10 protection). All movable parts shall be securely fastened to the anchor stock or shank to prevent movement, dislodgement or loss during handling, shipment and storage. Anchors shall be arranged, secured and packed for shipment in a manner acceptable to the carrier and which will insure safe delivery at destination in a satisfactory condition at the lowest applicable rate. The method of packing, packing media (skids, pallets, containers, etc.)

and loading shall comply with the Uniform Freight or National Motor Freight Classification Rules and Regulations or other carrier rules as applicable to the mode of transportation. Loading methods for closed or open rail cars shall be in accordance with the Association of American Railroads Rules as applicable to the type of vehicle employed.

d. Marking.

(1) Normal. Anchors shall be marked in accordance with MIL-STD-129, and as specified herein:

(a) National Stock Number (NSN) (use mfg's part number if no NSN).

(b) CAGE Code and Manufacturer's Part Number (PN).

(c) Contract Number (where applicable).

(d) Gross Weight and Cube.

(2) Special. Special markings used on containers (as applicable) are as follows:

(a) Anchor ID. Anchors weighing more than 100 pounds will have serial numbers cast in the crown. Small boat anchors shall have the stock number, weight and serial number stenciled or stamped on metal tags and wired to the shank shackle or ring. See Chapter 2, subparagraph 2.2.6.

(b) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(c) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container should be stenciled on all sides of the container.

(d) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.12.4 Handling

a. Special Handling Equipment and Tools. Forklift trucks and cranes are required to handle large anchors. Weight and size of the anchor determine the lifting and moving capacity required.

b. Special Handling Procedures. No special requirements.

c. Safety Requirements. Caution should be used in handling anchors. Moveable anchor parts that are not secured are dangerous to handle because of the possibility of their moving during handling. All moveable anchor parts shall therefore be secured before handling. Helmets and safety shoes should be worn at all times when involved with handling or moving anchors.

3.12.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
				a

a - Anchors require no environmental protection and may be stored in open storage area. Store on hard pack, macadam, or concrete pads to prevent anchors from sinking into the ground.

b. Segregation. There are no storage compatibility problems, however. **DO NOT** store in the vicinity of corrosive materials.

c. Shelf Life. Indefinite when packaged, packed, and stored as specified.

d. Special Storage Requirements. Store on hard pack, macadam, or concrete pads to prevent anchors from sinking into the ground.

3.12.6 Transportation

a. General. Anchors may be shipped by any mode.

b. Special. The size and weight of some anchors may limit the type of vehicle that can carry them. State or local authorities may require special permits and right of way clearances. Special circumstances should be referred to the appropriate Transportation Officer.

c. Loading. Caution should be used when lifting anchors for loading. Straps. should be safety-tested prior to lifting. Loads should be centered on special skids to provide weight distribution.

d. Carriers.

(1) Over the Road. Special low-boy flat bed trailers are required for extremely large and heavy anchors.

(2) Rail. Flat cars should be used for transporting extremely large and heavy anchors.

(3) Water. Break bulk carriers are recommended for extremely large and heavy anchors.

(4) Air. Special dollies or skids are required to prevent damage the aircraft's floor.

3.13 Bearings; Ball, Roller, Sleeve (Oil Impregnated, Metal, Non-Metal)

3.13.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.13.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.13.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.13.2 Periodic Inspection

a. Periodicity. Inspect all equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.13.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 standards only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.13.3.

Replace desiccant and humidity indicators as required.

3.13.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Bearings furnished individually or included with equipment shall be packaged Level A in accordance with MIL-DTL-197, MIL-DTL-2845 and MIL-B-17931, as applicable. Bearings should be sealed in water vapor proof (MIL-B-131, Type I) wrap. Protect wearing surfaces of sleeve bearings with over pack. Bearings shall be preserved-packaged as follows:

(1) Ball and Roller Bearings. Ball and roller bearings, under sixteen (16) inches outside diameter and less than forty (40) pounds in weight, shall be preserved-packaged in accordance with MIL-DTL-197.

(2) Metal Sleeve Tyne Bearings. Metal (oil-less) sleeve type bearings shall be preserved-packaged in accordance with MIL-DTL-2845.

(3) Impregnated Type Bearings. Impregnated (oilite and sleeve) type bearings shall be preserved in accordance with MIL-STD-2073-1.

(4) Non-metallic Bearings. Non-metallic bearings shall be preserved in accordance with MIL-STD 2073-1.

(5) Low Noise/Quiet Bearings. Low noise/quiet bearings shall be preserved-packaged in accordance with MIL-B-17931.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.13.1.

c. Packing. Packing shall be Level A in accordance with MIL-DTL-2845, MIL-B-17931, and MIL-DTL-197. Repair and use existing containers, or provide containers.

d. Marking.

(1) Normal. Marking shall be in accordance with MIL-STD-129, MIL-STD-740, MIL-DTL-197, MIL-DTL-2845, and MIL-B-17931. See chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings to be used on containers of bearings (as applicable) are:

(a) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(b) Desiccant Materials. For Method 50 packaged bearings the following marking should be adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(c) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(d) Structural or Handling. Marked on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(e) Low Noise. Low noise equipment is marked in accordance with MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment".

3.13.4 Handling

a. Special Handling Tools and Equipment. No special requirements.

b. Special Handling Procedures. No special handling requirements.

c. Safety Requirements. No special requirements.

3.13.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
		a		

a - Store in unheated warehouse.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. No unusual requirements.

c. Shelf Life. Indefinite if packaged, packed, and stored as specified.

d. Special Storage Requirements. No special requirements.

3.13.6 Transportation

a. General. Transportation may be by rail, truck, water, and air. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No special criteria.

c. Loading. No special requirements.

d. Carriers. Transportation may be truck, rail, water, or air.

3.14 Burners, Carbon Monoxide and Hydrogen

3.14.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.14.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.14.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.14.2 Periodic Inspection

a. Periodicity. Inspect carbon dioxide and hydrogen burners every two (2) years.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.14.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.14.3.

Replace desiccant and humidity indicators as required.

3.14.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 50. Noise-tested burners should always be shipped in the mount protection devices in which the manufacturer shipped them. If these original devices are not available, the packer must devise a way to immobilize the resilient mounts in an unstrained position and to protect them from damage.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.14.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-E-17555. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings on equipment containers (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(e) Noise-Tested Equipment. Containers for noise-tested burners shall be marked "SENSITIVE. NOISE-TESTED EQUIPMENT. HANDLE WITH CARE". For additional information, see MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment".

(f) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(g) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(h) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

3.14.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. Keep burners upright. Use extra care in handling NOISE-TESTED burners.

c. Safety Requirements. There are no special safety hazards related to this equipment.

3.14.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a		b		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment. **DO NOT** store equipment outside.

b - Equipment that is correctly packaged Method 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. No unusual requirements.

c. Shelf Life. Generally, carbon monoxide and hydrogen burners are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.14.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. Store burners in upright position. **DO NOT** superimpose loads.

3.14.6
Transportation

a. General. Burners can be shipped by any mode; however, the weight, size, and/or configuration may dictate a special mode of transportation. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Unique or unusual situations should be referred to the appropriate Transportation Officer for resolution.

c. Loading. Always use skids or pallets to lift burners. Insure even weight distribution prior to lifting.

d. Carriers.

(1) Over the Road. Noise tested plants require special shock isolation. Use van type trailers if possible.

(2) Rail. Noise tested plants require special shock isolation.

(3) Water. Use containers if possible. Covered barges or other break bulk carriers can be used.

(4) Air. Strap burner containers to skid to avoid stress.

3.15 Carbon Dioxide Removal Plant, Liquid Absorbent Type

3.15.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.15.3 d) for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.15.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.15.2 Periodic Inspection

a. Periodicity. Inspect carbon dioxide removal plant equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.15.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment. is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition..

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.15.3.

Replace desiccant and humidity indicators as required.

3.15.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 52.

NOTE: If plants are turned in without packaging, enclose the equipment in a waterproof wrap and anchor to a pallet or skid for handling. Noise-tested plants should always be shipped in the structural steel shipping frame in which the manufacturer shipped them.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.15.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Markings will be in accordance with MIL-STD-129 and MIL-E-17555. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings on equipment containers (as applicable) are:

(a) Desiccant Materials. The following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(e) Multiple-Trip Containers. Multiple trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(f) Noise-Tested Equipment. Containers for noise-tested plants will be marked: "SENSITIVE. NOISE-TESTED UNIT. HANDLE WITH CARE". For additional information, see MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipments".

(g) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

3.15.4 Handling

a. Special Handling Equipment and Tools. Cranes or other lifting equipment must be tall enough to keep the plant upright. Insure equipment being used has proper lift capability prior to making lift.

b. Special Handling Procedures. Keep plants upright at all times. Lift the plant using special lifting padeyes or strap plant to a pallet and use spreader bars to protect the equipment.

c. Safety Requirements. No special safety hazards.

3.15.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a		b		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment. **DO NOT** store this equipment outside.

b - Equipment that is correctly packaged Method 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. None required.

c. Shelf Life. Generally, carbon dioxide removal plants are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.15.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. Store plants in an upright position. **DO NOT** superimpose loads.

3.15.6 Transportation

a. General. Any mode of transportation can be used to ship carbon dioxide removal plants. However, the height, weight and configuration may dictate that a special type of vehicle be used. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Advise the appropriate Transportation Officer of any unique or unusual requirements.

c. Loading. Always keep the plant in an upright position. Lift the plant using special lifting padeyes or strap plant to a pallet and use spreader bars to protect the equipment.

d. Carriers.

(1) Over the Road. Noise-tested plants require special shock isolation.

(2) Rail. Noise-tested plants require special shock isolation.

(3) Water. Covered barge or other break bulk carriers can be used for water shipment.

(4) Air. Use skids to provide weight distribution.

3.16 Chain, Anchor

3.16.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect anchor chain containers for the presence and legibility of markings (see subparagraph 3.16.3 d; for obvious signs of damage, deterioration, or distortion; and for proper packing and bracing. Report all damage or insufficient packing to the applicable MATREP or Inventory Manager. Remark or repack as specified herein.

b. Unpacking equipment. Inspect unpackaged anchor chains for obvious signs of damage or deterioration (e.g., corrosion, cracks, pits, stretched links, etc.). Report all damage or insufficient packing to the applicable MATREP or Inventory Manager. Remark or repack as specified herein.

3.16.2 Periodic Inspection

a. Periodicity. Inspect all stored anchor chain annually.

b. Procedure. If packaged, inspect container for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.16.3. Make a note of any damage and its location.

If unpackaged and stored in open, uncovered storage, ascertain that the anchor chain is adequately supported by the surface beneath and not sinking into it.

3.16.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. No preservative is required.

b. Responsibility. The shipper shall be responsible for providing the correct packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for providing proper preservation and packing. Report incorrect or damaged packing per subparagraph 3.16.1.

c. Packing. Anchor chain will be braced. Packing shall be Level A, B, or C in accordance with best commercial practice (Method 10 protection). Small chain may be packed in wood boxes, kegs, barrels, open top steel drums, skidded loads, or it may be furnished unpacked. Large chain shall be folded in lengths of eleven (11) to twelve (12) feet and tied with wire rope. Chain shall be arranged, secured and packed for shipment in a manner acceptable to the carrier and which will insure safe delivery at destination in a satisfactory condition at the lowest applicable rate. The method of packing, packing media (skids, pallets, containers, etc.) and loading shall comply with the Uniform Freight

Classification Rules and Regulations or other carrier rules appropriate to the mode of transportation mode. Loading methods for closed or open rail cars shall be per the Association of American Railroads Rules as applicable to the type of car employed.

d. Markings.

(1) Normal. Each shot or length of chain shall be provided with a stamped corrosion resistant metal tag securely attached to the end link. Marking shall be in accordance with MIL-STD-129 and shall include the following information:

(a) National Stock Number
(b) Nomenclature
(c) Manufacturer's Serial Number
(d) Size
(e) Length
(f) Weight (pounds)
(g) Contract Number
(h) Contractor (including CAGE Code)

(2) Special. No special marking.

3.16.4 Handling

a. Special Handling Equipment and Tools. The length and weight of anchor chain may require special equipment, i.e., cranes, heavy-duty slings, rough terrain forklifts, etc.

b. Special Handling, Procedures. No special handling requirements.

c. Safety Requirements. Use extreme care while handling anchor chain as fingers can easily be crushed. Anchor chain that is not secured is dangerous to handle because of the possibility of the chain streaming uncontrollably from its own weight. Unsecured chains shall therefore be packed or bundled before handling.

3.16.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
				a

a - Anchor chains need no environmental protection and can be held in open storage. Store chain on hard pack, macadam or concrete pads to preclude sinking into the ground.

b. Segregation. Segregate by size and stock number.

c. Shelf Life. Indefinite when packaged, packed, and stored as specified.

d. Special Storage Requirements. Store on hard pack, macadam, or concrete pads to avoid chain sinking into ground.

3.16.6 Transportation

a. General. Transport anchor chain by rail or water.

b. Special. No special requirements.

c. Loading. Heavy anchor chain usually requires a high lift crane. Chain should be lifted by one end and let down so that it flows naturally.

d. Carriers.

(1) Over the Road. May require special permits due to heavy weight of large chain.

(2) Rail. Use open gondola car for large ship chain.

(3) Water. Large ship chain can be shipped by break bulk carrier or by barge.

(4) Air. Not allowed except in emergencies. Contact appropriate Transportation Officer in each case.

3.17 Compressors, Air (Except Oxygen)

3.17.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for the presence and legibility of markings (see subparagraph 3.17.3 d); for obvious signs of damage, deterioration, or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators. Report all damage, insufficient preservation-packaging, insufficient packaging, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve, or repack as specified herein.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine or working surfaces for similar damage or for excessive wear on used equipment. Inspect equipment for the presence of damage to the preservation-packaging. See paragraph 3.17.3 a. Report all equipment damage, excessive wear, insufficient preservation-packaging, or insufficient packing to the applicable MATREP or Inventory Manager. Remark, repair, represerve, or repack as required.

3.17.2 Periodic Inspection

a. Periodicity. Inspect all equipment annually. Equipment packaged to method 50 shall be inspected for pink or white humidity indicators every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.17.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.17.3.

Replace desiccant and humidity indicators as required.

3.17.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Air compressor equipment should be packaged Level A, preserved in accordance with MIL-STD-2073-1, Method 20 or 50, anchored and braced.

(1) Oil-Free Compressors. Oil-free compressors shall have Level A preservation-packaging in accordance with MIL-STD-2073-1, Method 50, (see Appendix A, , and MIL-STD-2073-1 for definitions) and as specified herein. All new equipment, RFI equipment, and non-RFI equipment enroute to or from repair activities will be preserved and packed to Level A requirements.

(2) Other Compressors. All other compressors will be preserved-packaged to Level A, and preserved in accordance with MIL-STD-2073-1, Method 20 or as specified.

(3) Submarine Repair Parts. Preservation-packaging for storage of air compressors and their repair parts on submarines is beyond the scope of this handbook. Refer to MIL-STD-758.

b. Responsibility. The shipper shall be responsible for providing correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.17.1.

c. Packing. Equipment will be packed Level A.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and as specified herein. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged air compressors the following marking should be placed adjacent to specified method markings: "CAUTION -REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Unpacking Instructions. Stencil on container: "STORE RIGHT SIDE UP - WARNING - SEE PACKING INSTRUCTIONS". Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(c) Low Noise. Low noise equipment will be marked in accordance with MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment". Containers for noise-tested units will be marked: "SENSITIVE. NOISE-TESTED-UNIT. HANDLE WITH CARE." The words "THIS END UP," together with an arrow indicating the top of the container, will be stenciled on all sides of the container.

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Structural or Handling. Mark on exterior of the shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(f) Depreservation Guide. Two copies, one in a waterproof envelope, marked: "DEPRESERVATION GUIDE" and attached to the compressor and the other with remaining instructional material marked: "A DEPRESERVATION GUIDE IS INSIDE".

(g) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(h) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(i) Container Markings. For NAVSEA Material only. Container markings shall include: “If container is damaged, notify the NAVSEA MATREP and NAVSEA Inventory Manager. Container to be opened only by authorized activity”.

3.17.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. See markings on container. Avoid unnecessary movement of equipment.

c. Safety Requirements. Some compressors are extremely large and heavy. Check weight capability of handling equipment before use. Always use sling points, lifting eyes, and center of balance markings when handling.

3.17.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment, which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged Method 20 or 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. Equipment that should have Method 20 or 50 protection, but that does not, should **NOT** be stored outside.

b. Segregation. **DO NOT** store in the vicinity of corrosive materials. Otherwise, no special requirements.

c. Shelf Life. Generally, air compressors are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.17.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. Air compressors properly packaged can be stacked on like material.

3.17.6 Transportation

a. General. Size and weight of equipment may dictate special transportation requirements. Unpackaged equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Advise the appropriate transportation officer of any unique or unusual requirement.

c. Loading. Use pallets, skids or special padeyes to lift equipment. Block and brace to prevent movement.

d. Carriers.

(1) Over the Road. When possible use covered van type trucks for unpackaged equipment. Be sure low noise equipment is shock isolated.

(2) Rail. Low noise equipment should be shock isolated.

(3) Water. Break bulk carrier or covered barge may be required.

(4) Air. Use skids on unpackaged equipment to insure weight distribution does not damage the floor of the aircraft.

3.18 Domes, Sonar; Rubber, Stainless Steel, Fiberglass

3.18.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.18.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; and for proper packing and bracing. Be sure domes are fully covered to prevent water accumulation. Report all damage, insufficient preservation-packaging and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

NOTE: Make sure that rubber sonar domes are fully covered with ultraviolet ray barrier. **DO NOT** remove barrier. **DO NOT** handle barrier that has been in contact with outer skin of dome.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.18.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve, or repack as required in the appropriate paragraph.

NOTE: Make sure that rubber sonar domes are fully covered with ultraviolet ray barrier. **DO NOT** remove barrier. **DO NOT** handle barrier that has been in contact with outer skin of dome.

3.18.2 Periodic Inspection

a. Periodicity. Inspect all sonar domes every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.18.3. Make sure rubber sonar domes are fully covered with ultraviolet ray barrier. Make a note of any damage and its location.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. Repair as required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.18.3.

3.18.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Sonar domes require Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1, Method 10. Domes are covered with a special Mylar film and must be protected from sunlight by use of an ultraviolet barrier.

NOTE: Outer and inner skins of rubber domes are fabricated from material containing Tri-N-Butyl-Tin oxide (TBTO), which is a toxic chemical.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.18.1.

c. Packing. Packing shall be in accordance with MIL-E-17555, Level A. The dome should be anchored to a special cradle for handling.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-E-17555. Nameplate data should be on a stamped metal plate permanently affixed to the dome in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on domes (as applicable) are:

(a) Storage. Sonar domes shall be marked: "STORE UNDER COVERED STORAGE".

(b) Ventilation. Rubber sonar domes require the following storage label: "PROVIDE ADEQUATE VENTILATION".

(c) Caution. Rubber sonar domes containing TBTO shall be marked with the following warning: "CAUTION - RUBBER DOME CONTAINS TOXIC CHEMICAL ORGANO-TINS".

3.18.4 **Handling**

a. Special Handling Equipment and Tools. Some steel shipping frames for sonar domes require special detachable wheels for handling.

b. Special Handling Procedures. Sonar dome cradles have special lifting padeyes. Domes should always be lifted by these padeyes. Extra large and heavy domes should be stored on cradles with detachable wheels for handling purposes.

c. Safe Requirements. Follow normal safety precautions when handling heavy loads.

NOTE: When handling rubber sonar domes, always use protective clothing and rubber gloves. Dome and/or protective cover may contain TBTO, a toxic chemical.

3.18.5. Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
		a	b	

a - Equipment that requires but does not have Method 10 protection can be stored in an unheated warehouse. **WARNING: DO NOT** store rubber sonar domes in unheated warehouse space, store in open covered storage only.

b - Equipment properly packaged Method 10 may be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store rubber sonar domes in warehouse spaces or in direct sunlight. For stainless steel and fiberglass sonar domes, coverings must prevent the accumulation of water during storage.

b. Segregation. **DO NOT** store other items in same location with rubber domes.

c. Shelf Life. Generally, sonar domes are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per paragraph 3.18.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. **DO NOT** store in direct sunlight. Insure rubber domes are stored in a well ventilated area.

3.18.6 Transportation

a. General. Sonar domes may be shipped by any mode, but the size and weight may severely limit the type of vehicle that can carry them. State and local authorities may require special permits and right-of-way clearances. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover. Cover rubber domes with ultraviolet barrier.

b. Special. Any unique or unusual transportation requirements should be referred to the appropriate Transportation Officer for assistance.

c. Loading. Block and brace as necessary. Use special cradles when shipping domes. Special lifting gear may be required.

d. Carriers.

(1) Over the Road. Open flat bed trailers will be required for transport. Cover domes with ultraviolet barrier to protect domes from direct sunlight.

(2) Rail. Open flatcars will be required for transport. Cover domes with ultraviolet barrier to protect from direct sunlight.

(3) Water. Domes can be shipped on weather decks, providing protection from direct sunlight is given.

(4) Air. Domes are normally not shipped by air.

3.19 Distilling Units, Water

3.19.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.19.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; and for proper packing and bracing. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.19.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve, or repack as required in the appropriate paragraph.

3.19.2 Periodic Inspection

a. Periodicity. Inspect water distilling equipment every two (2) years.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.19.3. Make a note of any damage and its location.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.19.3.

3.19.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Level A protection will be rendered in accordance with MIL-D-18641, and MIL-D-16196. Units should be protected by a hard side crate and protected from moisture and dust. If units are turned in without packing, enclose the units in a waterproof barrier and anchor to pallet.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.19.1.

c. Packing. Packing shall be Level A in accordance with MIL-D-18641 and MIL-D-16196. For unpacked units turned in, repair and use the existing container, or provide a new container in accordance with the requirements of the equipment specification, or equipment technical manual, or manufacturers' drawings.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129, MIL-D-18641, and MIL-D-16196. Nameplate data should be on a stamped metal tag permanently affixed to the equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on distilling unit containers are:

(a) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(b) Special Handling. Thermocompression type distilling units shall be marked on two sides and both ends: "CRITICAL, HIGH VALUE, CLOSE TOLERANCE OPERATING EQUIPMENT - HANDLE WITH EXTREME CARE - AVOID UNNECESSARY MOVEMENTS, JARRING, ETC".

(c) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container should be stenciled on all sides of the container.

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(f) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(g) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.19.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. Thermocompression type distilling units are critical, high value, close tolerance operating equipment; handle with extreme care. Avoid unnecessary movements, jarring shifting, etc.

c. Safety Requirements. No special requirements.

3.19.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a	b		

a - Distilling units that are not preserved or packaged will be stored in a heated warehouse. **DO NOT** store outside.

b - Store equipment that is correctly packaged in an unheated warehouse.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager or appropriate Refit and Restoration Office.

b. Segregation. No unusual requirements.

c. Shelf Life. Generally, water distilling units are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.19.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements. Inform the appropriate Inventory Manager if the equipment has components that have exceeded shelf life.

d. Special Storage Requirements. No unusual requirements. **DO NOT** superimpose loads.

3.19.6 Transportation

a. General. Weight, size and configuration may dictate special modes of transportation. Normally, all modes of transportation can be used to ship this equipment. However, oversize or overweight equipment will require special over-the-road or right-of-way clearances. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Thermo compression distilling units will require special air cushioned vehicles to transport them. Unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. Handle all units with care.

d. Carriers.

(1) Over the Road. Block and brace to prevent movement.

(2) Rail. Block and brace to prevent movement.

(3) Water. Barge or break bulk carrier will be required for overweight or oversize distilling units.

(4) Air. Use skids that provide weight distribution to avoid damaging the aircraft floor.

3.20 Emergency And Fire Fighting Equipment

3.20.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.20.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; and for proper packing and bracing. Report all damage, insufficient preservation-packaging, and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.20.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, and insufficient packing to the applicable MATREP or Inventory Manager. Remark, represerve, or repack as required.

3.20.2 Periodic Inspection

a. Periodicity. Inspect all emergency and fire fighting equipment a minimum of every six (6) months..

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.20.3. Make a note of any damage and its location.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, rot, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.20.3.

3.20.3. Packaging/Preparation for Delivery

a. Preservation-Packaging. Equipment requires Level A protection. HALON 1301 equipment shall be preserved-packaged in accordance with MIL-E-24572 and MIL-STD-2073-1, Method 10. Life preservers shall be preserved-packaged in accordance with MIL-L-3454.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.20.1.

c. Packing. Packing shall be Level A in accordance with MIL-E-24572 for HALON 1301 equipment, and in accordance with MIL-L-3454 for life preservers.

d. Marking.

(1) Normal. Nomenclature and identification shall be affixed to each item with non-deteriorating material in accordance with MIL-STD-130, MIL-E-24572, and MIL-L- 3454. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings to be used on containers of emergency and fire fighting equipment (as applicable) are:

(a) Year Marking. Life preservers shall be clearly marked showing the date of manufacture (month and year).

(b) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container are to be stenciled on all sides of the container.

(c) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(d) Technical Manuals. The location of technical manuals is marked on the packing list and the shipping container.

3.20.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. No special requirements.

c. Safety Requirements. No unusual hazards.

3.20.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
		a & c		b

a - Equipment that requires, but does not have, Method 10 protection, can be stored in an unheated warehouse.

b - Equipment properly packaged Method 10 may be stored in an open covered storage area.

c - Life preservers should be stored under cover in such a way as to allow fresh air circulation. An unheated warehouse is preferred, however, they may be stored under open covered storage if properly protected.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory manager.

b. Segregation. No unusual requirements.

c. Shelf Life. Generally, emergency and fire fighting equipment is considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per paragraph 3.20.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. No special requirements.

3.20.6 Transportation

a. General. All modes of transportation are acceptable. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No unusual requirements.

c. Loading. No unusual requirements.

d. Carriers. Transportation may be by truck, rail, water, or air.

3.21 Gas Generating and Handling Equipment

3.21.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.21.3 d) for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Open test valve to verify the system is pressurized. System is pressurized with 10 to 15 psig of nitrogen. Emergency relief valve will open at 15 psig. Report all damage, insufficient preservation-packaging, insufficient packing, pink or white humidity indicators, and depressurization to the applicable MATREP or Inventory Manager. Remark, represerve, repack or repressurize, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.21.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.21.2 Periodic Inspection

a. Periodicity. Inspect gas generating equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.21.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method II only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, depressurization, etc.). Closely inspect all exposed machine and working surfaces. Open relief valve to make sure the system is still pressurized. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition..

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of paragraph 3.21.3.

Replace desiccant and humidity indicators as required.

3.21.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Protection shall be Level A. Preserve in accordance with MIL-STD-2073-1.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per paragraph 3.21.1.

c. Packing. Packing shall be Level.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers (as applicable) are:

(a) Desiccant Materials. Shipping containers shall have the following marking affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Green Tag. Each valve that connects the packed system to the atmosphere shall have a green tag attached. Black lettering on the tag shall read as follows: "WARNING - SYSTEM HAS BEEN CLEANED FOR OXYGEN SERVICE. INNER CONTAINER IS PRESSURIZED WITH 10 - 15 PSIG OF NITROGEN. DO NOT OPEN VALVE UNTIL READY FOR USE. REFER TO TECHNICAL MANUAL".

(e) White Tag. A white tag with black lettering shall be attached to/or adjacent to the vacuum gauge and shall read as follows: "ANNULAR SPACE WAS EVACUATED TO (PRESSURE) MICRONS OF MERCURY PRESSURE ON (DATE)". The exact pressure as read on the system's vacuum gauge and the date of that reading shall be inserted in the above spaces.

(f) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(g) Structural or Handling. Mark on the exterior of the shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(h) Container Orientation. The words "THIS END UP", together with an arrow indicating the container top, should be stenciled on all sides of the container.

(i) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(j) Caution. Do not allow oil of any kind to be used on or about oil-free or oxygen clean valves.

3.21.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. No special requirements.

c. Safety Requirements. No special safety requirements.

3.21.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a	b		

a - Preferred storage is in a controlled humidity warehouse. As a minimum, equipment should be stored in a heated warehouse.

b - Equipment that is correctly packaged Method 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf-Life. Generally, gas generating and handling equipment is considered non-deteriorative, but may contain materials or components which can degrade during extended storage. Maintain periodic inspections per paragraph 3.21.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. No special requirements.

3.21.6 Transportation

a. General. All modes of transportation may be used to ship this equipment. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Advise appropriate Transportation Officer of any unique or unusual requirements.

c. Loading. Use pallets, skids or pad eyes to lift equipment. Block and brace to prevent movement during shipment.

d. Carriers.

(1) Over the Road. When possible, use covered van type trucks for unpackaged equipment.

(2) Rail. Use box car when possible for unpackaged equipment.

(3) Water. Break bulk carrier or covered barge may be required.

(4) Air. Use skids on unpackaged equipment to insure weight distribution does not damage floor of aircraft.

3.22 Laundry and Dry Cleaning Equipment

3.22.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.22.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in 0pen Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.22.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3. 22.2 Periodic Inspection

a. Periodicity. Inspect all laundry and dry cleaning equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.22.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.22.3.

Replace desiccant and humidity indicators as required.

3.22.3. Packaging/Preparation for Delivery

a. Preservation-Packaging. Protection shall be Level A. Laundry and dry cleaning equipment is bulky and awkward to pack. The equipment is self-contained and the internal machinery is sensitive. Rotating parts should be thoroughly secured prior to packaging. Over-pack cushioning is required due to sheet metal construction.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.22.1.

c. Packing. Packing shall be Level A and in accordance with MIL-STD-2073-1.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used or containers of laundry and dry cleaning equipment (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged equipment the following marking should be affixed adjacent to specified method marking: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(e) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(f) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container are to be stenciled on all sides of the container.

(g) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(h) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(i) Technical Manuals. The location of technical manuals is marked on the packing list and the shipping container.

3.22.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. **DO NOT** superimpose loads.

c. Safety Requirements. No unusual safety requirements.

3.22.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged Method 20 or 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

d - Equipment that requires, but does not have, Method 10 protection can be stored in an unheated warehouse.

e - Equipment properly packaged Method 10 may be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store equipment outside that should have Method 20 or 50 protection, but that does not.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Generally, laundry and dry cleaning equipment is considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.22.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. No special requirements.

3.22.6 Transportation

a. General. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No unusual requirements.

c. Loading. No unusual requirements.

d. Carriers.

(1) Over the Road. Use closed trucks or trailers only.

(2) Rail. Use boxcars only. **DO NOT** hump.

(3) Water. Use vans or break bulk below decks.

(4) Air. No special requirements.

3.23 Pumps, General

3.23.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.23.3 d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.23.3 a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.23.2 Periodic Inspection

a. Periodicity. Inspect pumps annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.23.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.23.3.

Replace desiccant and humidity indicators as required.

3.23.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Provide pumps with Level A protection in accordance with MIL-P-16789. Preserve in accordance with MIL-STD-2073-1.

(1) All open flanges, pipe taps and other openings shall be covered with barrier material (MIL-B-121 or MIL-PRF-131) and a blank flange of metal or plywood shall be bolted over the barrier. Flange bolts and nuts, on hydraulic pumps, shall be additionally secured by peening or wiring in place to prevent removal in transit. On smaller openings, a metal or plastic plug may be used. All other preserved surfaces, including the coupling, if any, shall be wrapped with barrier material (MIL-B-121, Type I, Grade A) and secured with tape (A-A-883 or A-A-1671). The tape should not come in contact with any machined surface. All pump shaft packing shall be removed from all stuffing boxes and packaged, labeled and packed with the complete pump unit inside the shipping container. Units equipped with drive belts shall have the belts removed in preparation for shipment, or belt tension shall be relieved, and pulleys coated with ignition insulation compound.

(2) Noise-tested units should always be shipped in the mount protection devices in which the manufacturer originally shipped them. If these original devices are not available, the packer must devise a way to immobilize the resilient mounts in an unstrained position and to protect them from damage.

(3) Accessories, such as gages, thermometers, governors, pulleys, sprockets, chains or parts of the unit, shall be preserved-packaged Level A and secured to the basic unit or arranged in a compact manner within the shipping container.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.23.1.

c. Packing. Packing shall be in accordance with the requirements of MIL-P-16789, Level A.

d. Marking.

(1) Normal. The package exterior should be marked in accordance with MIL-STD-129 and MIL-P-16789.

(2) Special. Special markings used on containers of packaged pumps (as applicable) are:

(a) Bolted Base Procedure. For units packaged or packed in a method procedure that requires the unit to be base secured (such as submethod 53 of MIL-STD-2073-1), or secured through a shock mounting system, the following markings will be affixed adjacent to the required MIL-STD-129 markings: "STORE RIGHT SIDE UP - WARNING - SEE UNPACKING INSTRUCTIONS".

(b) Desiccant Materials. The following markings should be stenciled on the container: "CAUTION. REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATORS FROM EQUIPMENT PRIOR TO OPERATION".

(c) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(d) Unpacking Instructions. These words should be adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)."

(e) Noise-Tested Equipment. Low noise equipment should be marked in accordance with MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment". Marked on the container: "SENSITIVE. NOISE-TESTED UNIT. HANDLE WITH CARE."

(f) Container Orientation. The words "THIS END UP", together with an arrow indicating the container top, should be stenciled on all sides of the container.

(g) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(h) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

(i) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

NOTE: If the pump is a NAVSEA controlled item, the following statement should be stenciled on the container: "If the container is damaged, notify the Life Cycle Manager (SEA 9232), COMMANDER NAVAL SEA SYSTEMS COMMAND, NSWC CD-SSES, 5001 South Broad Street, Philadelphia PA 19112".

3.23.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. Use extra care in handling noise-tested pumps. Ensure slings are made fast at sling points. Pumps turned in unpackaged must be anchored to a pallet or skids (or cushioned in an open container for smaller components) for handling and storage.

c. Safety Requirements. Exercise normal safety precautions for handling heavy equipment.

3.23.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged Method 20 or 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

d - Equipment that requires, but does not have, Method 10 protection, can be stored in an unheated warehouse.

e - Equipment properly packaged Method 10 may be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store equipment outside that should have Method 20 or 50 protection, but that does not.

b. Segregation. No storage compatibility problems.

c. Shelf Life. Resilient mounts have a shelf life. Use current shelf life directives or check technical manuals.

d. Special Storage Requirements. None required.

3.23.6 Transportation

a. General. All modes of transportation can be used to ship pumps, however, the size and weight of some pumps will severely limit the type vehicle that can carry them. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. State and/or local authorities may require special over-the-road permits. Special right-of-way clearances may be required for extra tall or heavy pumps. Unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. **DO NOT** apply wire slings or straps to pump housing or other exterior parts. Use pallets or skids and spreader bars to lift pumps not having special lifting padeyes. Straps should be attached to padeyes when they are available.

d. Carriers.

(1) Over the Road. Extra heavy or tall pumps may require special low-boy heavy duty trailers.

(2) Rail. Special air cushioned rail cars should be used for transporting noise tested pumps.

(3) Water. Covered barge or break bulk carrier may be required to transport large heavy pumps.

(4) Air. Use skids to distribute weight and protect floor of aircraft.

3.24 Recompression Chamber

3.24.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.24.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.24.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.24.3 Periodic Inspection

a. Periodicity. Inspect recompression chambers annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.24.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.24.3.

Replace desiccant and humidity indicators as required.

3.24.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Recompression chamber equipment requires Level A protection. Preserve in accordance with MIL-STD-2073-1, Method 20 or 50.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.24.1.

c. Packing. Packing shall be Level A. Crates are to be in accordance with MIL-C-104, Type II, Class 2, Style A, or MIL-C-3774, Type II.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged recompression chambers the following marking should be placed adjacent to specified method markings: “CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION’’.

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(f) Structural or Handling. Mark on the exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(g) Container Orientation. The words "THIS END UP", together with an arrow indicating the container top, should be stenciled on all sides of the container.

(h) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.24.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. None required.

c. Safety Requirements. No special hazards.

3.24.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment.

b - Store equipment, which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Equipment that is correctly packaged Method 20 or 50 can be stored in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packaged equipment. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager. **DO NOT** store equipment outside that should have Method 20 or 50 protection, but that does not.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Generally, recompression chambers are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.24.2. Consult cognizant Material Representative, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. None required.

3.24.6 Transportation

a. General. Any mode of transportation may be used. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No special requirements.

c. Loading. Use pallets, skids, or pad eyes to lift equipment. Block and brace to prevent movement during transportation.

d. Carriers.

(1) Over the Road. When possible, use covered van type trucks for unpackaged equipment.

(2) Rail. Use box car when possible for unpackaged equipment.

(3) Water. Break-bulk carrier or covered barge may be required.

(4) Air. Use skids on unpackaged equipment to insure weight distribution does not damage floor of the aircraft.

3.25 Refrigerating / Air Conditioning Units and Refrigerators

3.25.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.25.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.25.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.25.2 Periodic Inspection

a. Periodicity. Inspect refrigerating and air conditioning units annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.25.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging, as required, to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing to meet the requirements of subparagraph 3.25.3.

Replace desiccant and humidity indicators as required.

3.25.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Equipment requires Level A protection. Preserve in accordance with MIL-STD-2073-1, Method 50. Knock-down walls for walk-in refrigerators should receive Method 30 protection as a minimum. Noise-tested units should always be shipped in the mount protection devices in which the manufacturer originally shipped them. If these original devices are not available, the packer must devise a way to immobilize the resilient mounts in an unstrained position and to protect them from damage.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.25.1.

c. Packing. Packing shall be to Level A standards.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged equipment, the following marking should be placed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE; DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. When equipment is packaged Method 50, the following precaution will be affixed to the container in accordance with MIL-STD-129: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(e) Refrigerant Pressure Gauge. Mark adjacent to the inspection door: "REFRIGERANT SIDE PRESSURE GAUGE - INSPECTION DOOR".

(f) Nitrogen-Charged Equipment. The container will be marked to indicate that the system is pressurized to five (5) pounds per square inch with dry, oil-free nitrogen. The inspection door, or an adjacent surface, should be marked with the words "NITROGEN PRESSURE GAUGE - INSPECTION DOOR".

(g) Low Noise. Low noise equipment will be marked in accordance with MIL-STD-740, "Airborne and Structure Borne Noise Measurements and Acceptance Criteria of Shipboard Equipment". Containers for noise-tested units will be marked: "SENSITIVE. NOISE-TESTED UNIT. HANDLE WITH CARE."

(h) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(i) Container Orientation. The words "THIS END UP", together with an arrow indicating the top of the container, should be stenciled on all sides of the container.

(j) Front. Next to the front of the unit being packed, the panel of the shipping container should be marked "FRONT" in letters not less than one (1) inch in height.

(k) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(I) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(m) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

3.25.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. Use extra care in handling noise-tested units. Use normal precautions for handling heavy, unbalanced equipment.

c. Safety Requirements. **DO NOT** open pressurized containers without bleeding off pressure. Compressors may be charged with Freon or ammonia gas. **DO NOT** puncture lines on compressors.

3.25.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c		

a - Store equipment which should be packaged Method 50, but is not, in a controlled humidity area. This includes non-RFI equipment. **DO NOT** store outside.

b - Store equipment which should be packaged Method 20, but is not, in a heated warehouse. This includes non-RFI equipment.

c - Store equipment that is correctly packaged Method 20 or 50 in an unheated warehouse. **DO NOT** remove desiccant. Leave inspection ports accessible for periodic checks of humidity indicators and pressure gages.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Some resilient mounts have service/shelf lives. Check technical manuals for specific requirements.

d. Special Storage Requirements. **DO NOT** superimpose loads.

3.25.6 Transportation

a. General. Any mode of transportation can be used to transport this equipment. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. No unusual requirements.

c. Loading. Use care not to break or puncture gas lines on units. Items are fragile - **DO NOT DROP.**

d. Carriers.

(1) Over the Road. When possible, use covered van-type trucks for unpackaged equipment. Be sure low noise equipment is shock isolated.

(2) Rail. Low noise equipment should be shock isolated.

(3) Water. Break bulk carrier or covered barge may be required.

(4) Air. Use skids on unpackaged equipment to insure weight distribution does not damage floor of aircraft.

3.26 Servo-Components; Precision Instrument, Rotating

3.26.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.26.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.26.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.26.2 Periodic Inspection

a. Periodicity. Inspect equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.26.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect exposed machine and working surfaces. Note any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair packaging and packing as required to meet requirements of subparagraph 3.26.3.

Replace desiccant and humidity indicators as required.

3.26.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Servo equipment requires Level A protection. Preservation/packaging is in accordance with MIL-E-17555 and MIL-STD-2073-1.

NOTE: Servos are preserved–packaged in accordance with MIL-E-17555 and semiconductors are in accordance with MIL-S-19491.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.26.1.

c. Packing. Packing is in accordance with MIL-E-17555, Level A.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-E-17555. Nameplate data should be on a stamped metal plate permanently affixed to the equipment in accordance with MIL-STD-130.

(2) Special. Special markings used on containers (as applicable) are:

(a) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(b) Desiccant Materials. For Method 50 packaged equipment the following marking should be placed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(c) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(d) Fragile. Fragile equipment will be marked in accordance with MIL-STD-129. Containers containing delicate or fragile items shall be marked by means of a "FRAGILE" label.

(e) Magnetic Materials. When magnetic material is packed, red labels with "MAGNETIC MATERIALS" in white letters will be affixed on two opposite sides of the container.

(f) Container Orientation. The words "THIS END UP", together with an arrow indicating the container top, should be stenciled on all sides of the container.

(g) Critical Tolerance Equipment. Unit packs, shipping containers, and unpacked shipments should be marked with the following: "CRITICAL, CLOSE TOLERANCE OPERATING EQUIPMENT. HANDLE WITH CARE. DO NOT DROP OR SUBJECT TO SHOCKS OR JARS."

(h) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(i) Multiple-Trip Containers. Multiple trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(j) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

3.26.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. Equipment is fragile - **HANDLE WITH CARE.**

c. Safety Requirements. No special requirements.

3.26.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
	a	b		

a - Equipments which are not correctly preserved-packaged should be stored in a heated warehouse. This includes non-RFI equipment.

b - All servo-component equipments which are correctly preserved-packaged Method II can be stored in an unheated warehouse.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Generally, servo-components and precision instruments are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.26.2. Consult cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. None required.

3.26.6 Transportation

a. General. Any mode of transportation can be used to ship this material; however, fragility can be a factor. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Unique or unusual requirements should be referred to the appropriate Transportation Officer.

c. Loading. No special requirements.

d. Carriers.

(1) Over the Road. Use covered van type trucks or trailers.

(2) Rail. Use covered boxcars only.

(3) Water. Use sealed containers.

(4) Air. Make sure equipments are packed in accordance with carrier requirements.

3.27 Steering Gear; Electro-Hydraulic, Marine

3.27.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.27.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Check that the fluid maintenance tag is attached. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.27.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.27.2 Periodic Inspection

a. Periodicity. Steering gears stored more than thirty (30) days should have the oil level checked periodically. Inspect complete steering gear assemblies every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.27.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Check oil level. Make a note of the location and damage, if any.

Check that the tag indicating fluid maintenance requirements for the electro-hydraulic marine steering gear is present and then *perform the periodic maintenance as indicted on the tag.*

Take fluid samples and analyze for water and particle content annually or more frequently if required.

Inspect the caps covering open ends. Caps must be present on open ends. Tape is acceptable for securing caps, but not in place of. caps.

If the steering gear equipment is damaged, note and report the specifics of the damage to the MATREP or to the Inventory Manager. If possible, effect whatever repairs are required to return the unit to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair packaging and packing as required to meet subparagraph 3.27.3 requirements.

Replace desiccant and humidity indicators as required.

3.27.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Provide the equipment Level A protection. Preserve in accordance with MIL-STD-2073-1. Steering gears turned in without packaging must be anchored to a pallet or skid for handling or storage.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported in accordance with the requirements of subparagraph 3.27.1.

c. Packing. Packing shall be Level A. Use waterproof barrier (MIL-B-121, Type I, Grade A) overwrap.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129. Gear assemblies should have identification plates permanently affixed to the storage case that are in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers of packaged steering gears (as applicable) are:

(a) Desiccant Materials. The following marking should be stenciled adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stenciled adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Container Orientation. The words "THIS END UP" together with an arrow indicating the top of the container should be stenciled on all sides of the container.

(e) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(f) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(g) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

3.27.4 Handling

a. Special Handling Equipment and Tools. Due to the weight and size of steering gears, special lifting equipment, including cranes, may be required. Check lift, capacities carefully before attempting to move these gears.

b. Special Handling Procedures. Steering gears are heavy and weight is often unbalanced. Special care should be taken to avoid bumping or dropping gears. Gears are constructed of inherently critical material, machined to close tolerances, are easily damaged, and extensive expenditures of funds are required to repair even slight damage.

c. Safety Requirements. Gears are extremely heavy and are awkward to handle. Appropriate safety precautions should be observed.

3.27.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a				

a – Marine electro-hydraulic steering gears should always be stored in a controlled humidity area. If steering gear equipment is to be in storage for more than thirty (30) days, the oil level must be check periodically. **DO NOT** remove desiccant from Method 50 packaged and preserved equipment. Inspection portals should always be left accessible so that periodic checks of humidity indicators can take place. **DO NOT** store steering gears outside.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Indefinite when packaged, packed, and stored as specified.

d. Special Storage Requirements. If equipment is to be in storage for more than thirty (30) days, check oil level periodically.

3.27.6 Transportation

a. General. Gear assemblies may be shipped by any mode, however, their size and weight may severely limit the type vehicles that can carry them. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. State and/or local authorities may require special permits and right-of-way clearances before permitting transit through their areas of transportation oversight. In the event of unique or unusual requirements contact the appropriate Transportation Officer for assistance and resolution.

c. Loading. Size and weight of gear assemblies may dictate the use of special lifting equipment. Caution should be taken in loading and unloading gear assemblies to avoid jamming or scarring of gear teeth.

d. Carriers.

(1) Over the Road. May require special heavy weight carrying low-boy trailers. After totally securing the assembly against shifting and tilting, add barrier material, tarpaulins, etc.

(2) Rail. May require shipment by flatcars. Secure the assembly to protect against shifting or movement.

(3) Water. May require break bulk carrier. Do not transport on weather deck.

(4) Air. Take extreme care to distribute weight as evenly as possible.

3.28 Tubes, Periscope

3.28.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.28.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.28.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.28.2 Periodic Inspection

a. Periodicity. Inspect and rotate periscope tubes every six (6) months.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.28.3. Make a note of the location and the damage.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. **Rotate periscope tubes 180° every six (6) months.** Make a note of the location and damage, if any.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.28.3.

Replace desiccant and humidity indicators as required.

3.28.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Provide Level A protection in accordance with NAVSEA Handbook S9425-AH-PRO-010. Preserve in accordance with MIL-STD-2073-1, Method 50. Periscope tubes shall be preserved-packaged Method 50 individually, or as a unit, in specially designed government furnished containers.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.28.1.

c. Packing. Packing shall be Level A in accordance with NAVSEA Handbook S9425-AH-PRO-010. Repair and use the existing special container, or advise the Inventory Control Point that a new container is required.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and NAVSEA Handbook S9425-AH-PRO-010. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special.

(a) Desiccant Materials. The following marking should be affixed adjacent to the specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATORS FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. The following should be stenciled adjacent to identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(e) Critical Tolerance Equipment. Unit packs, shipping containers, and unpacked shipments should be marked with the following: "CRITICAL, CLOSE TOLERANCE OPERATING EQUIPMENT. HANDLE WITH CARE. DO NOT DROP OR SUBJECT TO SHOCKS OR JARS".

(f) Identification. Stencil on the lower half of the shipping container the mast type, registry number, and the equipment serial number.

(g) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(h) Technical Manuals. The location of technical manuals is marked on the packing list and the shipping container.

3.28.4 Handling

a. Special Handling Equipment and Tools. None required.

b. Special Handling Procedures. Lift equipment at designated lift points only.

c. Safety Requirements. No personnel safety hazards are involved with this equipment.

3.28.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a		b		

a - Store periscope tubes (including non-RFI) which should be packaged Method 50, but are not, in a controlled humidity area. **DO NOT** store this equipment outside.

b - Store periscope tubes that are correctly packaged Method 50 in an unheated warehouse. **DO NOT** remove desiccant. Leave humidity indicators accessible for periodic checks.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the Inventory Manager.

b. Segregation. Store equipment where it will not be affected by impact from material handling equipment, oil or grease, or pressure from other material.

c. Shelf Life. Indefinite when packaged, packed, and stored as specified.

d. Special Storage Requirements. Store on a flat surface. Rotate tubes 180 degrees every six months. **DO NOT** superimpose loads on the special containers.

3.28.6 Transportation

a. General. Always ship tubes in special configured containers to provide shock mitigation. Fragility and environmental factors are a consideration. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Shock mitigated extendable trailers are a prerequisite for truck transport.

c. Loading. Lift equipment at designated lift points only.

d. Carriers.

(1) Over the Road. Truck transport is the desired method. Special shock mitigated extendable trailers are a prerequisite.

(2) Rail. Not desired or allowed unless specifically approved by the appropriate Transportation Officer.

(3) Water. Not desired or allowed unless specifically approved by the appropriate Transportation Officer.

(4) Air. Should be shipped in special shock mitigated container.

3.29 Valves

3.29.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.29.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Open Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.29.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.29.2 Periodic Inspection

a. Periodicity. Inspect valves annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.29.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using detailed instructions specified herein.

Repair the packaging and packing to return to the requirements of subparagraph 3.29.3.

Replace desiccant and humidity indicators as required.

3.29.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Provide valves with Level A protection in accordance with MIL-V-3. Preserve in accordance with STD-2073-1.

(1) Valves cover a wide spectrum in durability. However, all valves should be protected from damage at points of connection and fittings. Large, expensive valves should be cushioned and anchored to a pallet for handling or storage.

(2) Ball valves should be fully protected so that the ball is not damaged in transit or storage.

(3) Solenoid valves require watervaporproof barrier (MIL-PRF-131, Type I) and should be packaged Method 50 per MIL-STD-2073-1.

(4) Valves having special certification should have certification papers packed with valve.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.29.1.

c. Packing. Packing shall be Level A per MIL-V-3. Repair and use the existing container, or provide a new container in accordance with MIL-V-3 as applicable.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-V-3. Equipment nameplate data should be on a stamped metal plate and permanently affixed to the valve in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on valve containers (as applicable) are:

(a) Special Certification. Exterior packs, for valves with special certification, should be stenciled: "DO NOT DETACH CERTIFICATION PAPERS FROM MATERIAL".

(b) Desiccant Materials. For Method 50 packaged valves the following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(c) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(d) Technical Manuals. The location of technical manuals should be marked on the packing list and the shipping container.

(e) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(f) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(g) Structural or Handling. Mark on exterior of the shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE." Mark load-bearing areas and lift points.

3.29.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. Do not lift valves by stem or handle.

c. Safety Requirements. Valves are awkward to handle. Use care when moving.

3.29.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store valves that should have Method 50 protection, but do not, in a controlled humidity area (include non-RFI valves).

b - Store valves which should be packaged Method 20, but are not, in a heated warehouse. This includes non-RFI equipment.

c - Store valves that are correctly packaged Method 20 or 50 in an unheated warehouse. **DO NOT** remove desiccant. Leave inspection ports accessible for periodic checks of humidity indicators.

d - All valves that require, but do not have Method 10 protection, can be stored in an unheated warehouse.

e - Valves correctly packaged Method 10 can be stored in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of protection and inform the lnventory Manager. **DO NOT** store equipment requiring, but not having, Method 20 or 50 protection outside.

b. Segregation. No unusual requirements.

c. Shelf Life. Generally, valves are considered non-deteriorative, but may contain materials or components that can degrade during extended storage. Maintain periodic inspections per subparagraph 3.29.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements. Refer to current shelf life directive for valves containing material such as "O" rings that have a shelf life.

d. Special Storage Requirements. No special requirements.

3.29.6 Transportation

a. General. All modes of transportation can be used to ship valves. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Large submarine ball valves require extra care while in transit. Block and brace as necessary to preclude movement

c. Loading. **DO NOT** lift large valves by stem or handle. Protect valves against movement by securely strapping them to pallet or skid prior to transporting. Attach straps or slings to pallet or skid and not directly to valve.

3.30 Winches, Heavy Electro-Hydraulic and Electro-Mechanical Equipment

3.30.1 Receipt Inspection Requirements

a. Packaged Equipment. Inspect packaged equipment containers for presence and legibility of markings (see subparagraph 3.30.3d); for obvious signs of damage, deterioration, and/or distortion; for correct preservation-packaging; for proper packing and bracing; and for pink or white humidity indicators (if applicable). Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

b. Unpacked Equipment or Equipment Packed in Omen Crates or Boxes. Inspect unpackaged equipment for obvious signs of damage, deterioration, distortion, and lack of anchoring hardware, blocks and braces, and any other protective devices necessary to prevent damage to equipment during handling and storage. Inspect equipment for the presence of damage to the preservation-packaging. See subparagraph 3.30.3a. Unpackaged equipment must be secured to pallet, box, or crate to avoid damage during handling. Report all damage, insufficient preservation-packaging, insufficient packing, and pink or white humidity indicators to the applicable MATREP or Inventory Manager. Remark, represerve or repack, as required.

3.30.2 Periodic Inspection

a. Periodicity. Inspect winches, heavy electro-hydraulic and electro-mechanical equipment annually.

b. Procedure. Inspect containers for obvious signs of damage, deterioration, or distortion and for proper blocking and bracing. See subparagraph 3.30.3. Make a note of any damage and its location.

Check humidity indicators. Continue this inspection procedure for equipment packaged to method 50 only if the indicators are found to be pink or white. Continue the procedure for all other equipments.

Carefully remove packing and packaging as required to provide access to the equipment. As the packing and packaging must be reused, take care not to damage it.

Inspect equipment and preservation for obvious signs of damage, deterioration, or distortion (e.g., corrosion, cracks, gouges, bent and distorted surfaces, etc.). Closely inspect all exposed machine and working surfaces. Check fluid levels to make sure they are at the required level. Make a note of any damage and its location.

If the equipment is damaged, report the damage to the MATREP or Inventory Manager. If possible, effect repairs required to return to RFI condition.

If the preservation is damaged, represerve using the detailed instructions specified herein.

Repair the packaging and packing as required to return to the requirements of subparagraph 3.30.3.

Replace desiccant and humidity indicators as required.

3.30.3 Packaging/Preparation for Delivery

a. Preservation-Packaging. Provide Level A protection in accordance with MIL-M-3184. Preserve in accordance with MIL-STD-2073-1. Winches and drums may. be partially disassembled to facilitate cleaning and preservation-packaging, and to reduce cube.

b. Responsibility. The shipper shall be responsible for providing the correct preservation-packaging and packing. If that activity is unable to comply with these requirements, it shall turn in the item through the base supply activity, which will then bear the responsibility for proper preservation and packing. Incorrect or damaged preservation-packaging or packing will be reported per subparagraph 3.30.1.

c. Packing. Packing shall be Level A in accordance with MIL-M-3184. Repair and use the existing container, or provide a new container in accordance with MIL-M- 3184 or the requirements of the equipment technical manual or manufacturer's drawings.

d. Marking.

(1) Normal. Marking will be in accordance with MIL-STD-129 and MIL-M-3184. Nameplate data should be stamped on a metal plate permanently affixed to the equipment in accordance with MIL-STD-130. See Chapter 2, subparagraph 2.2.6 for container markings.

(2) Special. Special markings used on containers for winches, heavy electro-hydraulic and electro-mechanical equipment (as applicable) are:

(a) Desiccant Materials. For Method 50 packaged equipment, the following marking should be affixed adjacent to specified method markings: "CAUTION - REMOVE PACKAGING, TAPE, DESICCANT, AND HUMIDITY INDICATOR FROM EQUIPMENT PRIOR TO OPERATION".

(b) Method 50 Marking. Marking will be in accordance with MIL-STD-129. When equipment is packaged Method 50, the following precaution will be affixed to the container: "METHOD 50 PACKAGE - DO NOT OPEN UNTIL READY FOR USE".

(c) Unpacking Instructions. Stencil adjacent to the identification markings: "CAUTION - THIS EQUIPMENT MAY BE SERIOUSLY DAMAGED UNLESS UNPACKING INSTRUCTIONS ARE FOLLOWED CAREFULLY. UNPACKING INSTRUCTIONS ARE LOCATED (include location)".

(d) Multiple-Trip Containers. Multiple-trip containers will be marked "REUSABLE," and instructions will be provided for container disassembly and content removal. These will be secured to the outside of the container in a protected location.

(e) Container Orientation. The words "THIS END UP", together with an arrow indicating the container top, should be stenciled on all sides of the container.

(f) Structural or Handling. Mark on exterior of shipping container: "CENTER OF BALANCE" with vertical lines indicating the center of balance, and "SLING HERE". Mark load-bearing areas and lift points.

(g) Dimensions. Mark outside dimensions for all containers having any dimensions of 72 inches or greater.

(h) Technical Manuals. The location of technical manuals is marked on the packing list and the shipping container.

3.30.4 Handling

a. Special Handling Equipment and Tools. No special requirements.

b. Special Handling Procedures. Handle by installed fittings on base, if available. Most equipment is extremely large and heavy.

c. Safety Requirements. Observe safety precautions for handling heavy mechanical equipment.

3.30.5 Storage

a. Environment.

Controlled Humidity Warehouse	Heated Warehouse	Unheated Warehouse	Open Covered Storage	Open Storage
a	b	c & d	e	

a - Store equipment that should have Method 50 protection, but that does not, in a controlled humidity area. This includes non-RFI equipments.

b - Store equipments which should be packaged Method 20, but are not, in a heated warehouse. This includes non-RFI equipment.

c - Store Method 20 or 50 equipments that are correctly packaged in an unheated warehouse. **DO NOT** remove desiccant from Method 50 packages. Leave inspection ports accessible for periodic checks of humidity indicators.

d - Store equipment requiring, but not having, Method 10 protection in an unheated warehouse.

e - Store correctly packaged Method 10 equipment in an open covered storage area.

NOTE

If equipment cannot be stored as required, store in an area that affords the next best level of. protection and inform the Inventory Manager. **DO NOT** store equipment requiring, but not having, Method 20 or 50 protection outside.

b. Segregation. No special requirements.

c. Shelf Life. Generally, winches are considered non-deteriorative. However, they may contain materials or components, some of which can degrade during extended storage. Maintain periodic shelf life inspections per the requirements of subparagraph 3.30.2. Consult the cognizant MATREP, Inventory Manager or technical manual for detailed requirements.

d. Special Storage Requirements. No special requirements.

3.30.6 Transportation

a. General. All modes of transportation can be used to transport heavy electro-hydraulic and electro-mechanical winches and support equipments. However, size and weight may severely limit the type vehicles that can carry them. State and local authorities may require special permits and right-of-way clearances. Unpacked equipment and equipment packed in open crates or boxes that will be exposed to the environment during transit shall be secured and covered with a waterproof shroud or cover.

b. Special. Any unique or unusual requirements should be referred to the appropriate Transportation Officer for assistance.

c. Loading. Block and brace winches as necessary to preclude movement. Due to weight and out size characteristics special heavy duty lifting equipment may be required to load and unload this equipment. Check lift capabilities before attempting to move equipment.

d. Carriers.

(1) Over the Road. Special heavy duty "low-boy" trailers may be required to move this equipment. Protect equipment from elements while in transit.

(2) Rail. Flat cars may be required to transport this equipment.

(3) Water. Can be carried by barge or break bulk carrier. Protect from elements if deck loaded.

(4) Air. Insure even weight distribution to avoid damage to the aircraft floor.